Always “On” UPS Systems Inc.

GES V-Series – Single Phase Input, Single Phase Output

Uninterruptible Power Supply

GES-801V, GES-102V, GES-102VR, GES-152V, GES-152VR, GES-222V, GES-222VR

Line Interactive (PWM): 800VA, 1kVA, 1.5kVA, 2.2kVA

User Manual

Version 2.2

SAVE THESE INSTRUCTIONS

- This manual contains important instructions for the GES-801V, GES-102V, GES-102VR, GES-152V, GES-152VR, GES-222V, GES-222VR and should be followed during installation and maintenance of the UPS and batteries.
- The UPS contains voltages that are potentially hazardous. Please contact our dealers or qualified personnel for service.
- Servicing of the batteries should be performed or supervised by personnel knowledgeable with batteries and the required precautions. Keep unauthorized personnel away from batteries.
- When replacing batteries, replace with the same model number, type and rating.
- **CAUTION:** Do not dispose of battery or batteries in a fire. The batteries may explode.
- **CAUTION:** Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- **CAUTION:** A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on or with the batteries.
  - Remove watches, rings, or other metal objects.
  - Use tools with insulated handles.
  - Wear rubber gloves and boots.
  - Do not lay tools or metal parts on top of batteries.
  - Disconnect charging source prior to connecting or disconnecting battery terminals.
  - Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source of ground. Contact with any part of a grounded battery can result in electric shock. The likelihood of a shock will be reduced if grounds are removed during installation and maintenance (applicable to a UPS and a remote battery supply not having a grounded supply circuit).
- **CAUTION:** To ensure the safety and performance of the UPS, never load the UPS with a hair dryer, heater, laser printer or other types of inductive loads.

SAFETY INSTRUCTIONS

1. The UPS has its own internal energy source (battery), therefore the output receptacles may have electricity present even though the UPS is disconnected from the utility power.
2. The DC voltage provided from the internal battery is 24Vdc for 801V, 102V, 152V, 102VR, 152VR. 48Vdc for 222V, 222VR.
3. The isolated ground wire (green or green with yellow stripe) must meet national wire requirements.
4. The power plug to connect with the UPS has to be equipped with a ground plug.
5. Battery must be replaced or serviced by qualified, knowledgeable, personnel.
6. Replacement battery must be the type, quantity and configured the same as the original(s).
7. To avoid explosions, keep open flame and other heat emitting sources away from battery.
8. Do not disassemble or damage the battery. The electrolyte is toxic and especially harmful to the eyes and skin.
9. The battery contains high voltages and currents that are dangerous. To maintain secure operation and performance of the UPS, the user must exercise basic and regular maintenance.
10. Please follow the precautions below when dealing with the UPS:
    1. Do not remove the UPS cover unless authorized by factory. Removing the cover will void the warranty.
    2. The UPS can only be connected to a 2-pole/3-wire plug.
    3. Do not install the UPS in an environment with excessive humidity.
    4. Do not allow liquids or foreign objects to get inside the UPS.
    5. Allow for air circulation through the UPS. A minimum clearance of 10cm is required on all sides.
    6. Do not load the UPS with appliances such as a hair dryer, heater, vacuum, kettle, etc.
    7. Keep the UPS away from direct sunlight and heat-emitting sources.
    8. Install the UPS as close as possible to the load for maximum protection.
11. Storage Requirements
    1. Recharge the UPS batteries every 6 months for no less than 8 hours at a time.
    2. Under a high ambient temperature environment, recharge the UPS batteries every 3 months for no less than 8 hours at a time
12. High Voltage Risk:
    1. High voltages might exist between the battery terminal and the grounding system, if the battery circuit has not been disconnected from the UPS circuit. Please check this voltage before connecting.
    2. Disconnect the battery wires before proceeding with maintenance. High voltages may be present between the UPS internal components and battery even after the input power is disconnected.

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1. INTRODUCTION

The V-Series is a Line Interactive UPS system that includes the newest and latest technology enhancements. The Line Interactive technology with AVR function (on-line voltage boost-up & buck-down) allows for a wide input voltage range of 90 to 150VAC. The V-Series UPS is ideal protection for microprocessor control loads. After the UPS has been turned "On" it will protect the load from transients, spikes and other power aberrations. In the event of a blackout (or severe brownout) the UPS will automatically switch to back-up mode and maintain power to the load until the software shuts down the system or when the battery reaches a low voltage state. Also included with our UPS systems is a cyclic self-testing function to verify both the operation of the UPS and the condition of the battery.

In addition, the V-Series UPS provides advanced telephone line and Ethernet surge suppression through the modular connectors on the back panel.

The Line Interactive UPS in conjunction with our monitoring software makes your UPS operate intelligently and provides you with total protection for all your loads.

Interference to Radio / TV
If this UPS causes interference to radio or television reception, which can be determined by turning the UPS off and on, the user can attempt to correct the interference by one or more of following measures:

1. Connect the equipment to an outlet on a circuit different from the one that the receiver is connected.
2. Increase the separation between the equipment and the receiver.
3. Re-orientate the receiving antenna.

2. PRESENTATION

2.1. Front Panel

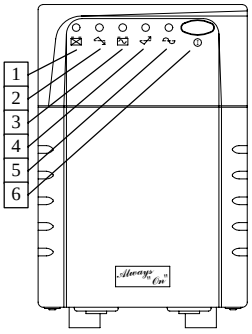


Figure 2.1.1
Tower Front Panel.

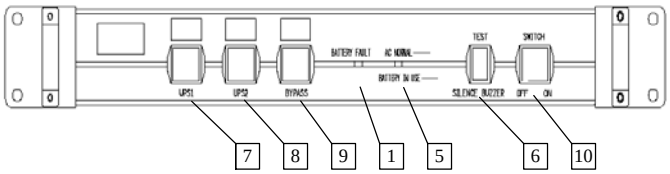


Figure 2.1.2
102VR Front Panel

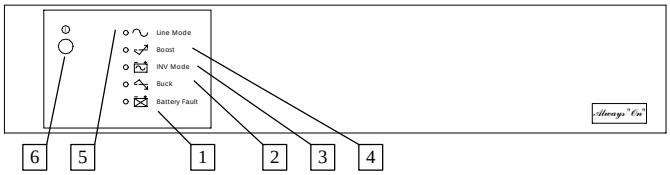


Figure 2.1.3
152/222VR Front Panel.

1 REPLACE BATTERY indicator (RED LED)
This LED illuminates when the UPS's batteries are no longer useful and must be replaced.
Note: When replacing the batteries, disconnect the utility power and then open the case. Take notice of the polarity before installing the new batteries to avoid a short.

2 BUCK AVR (VOLTAGE REDUCTION) indicator (YELLOW LED)
This LED illuminates when the UPS is correcting a high utility voltage condition. The loads receive normal power.

3 BACK-UP indicator (YELLOW LED)
This LED illuminates when the UPS is supplying battery power to the loads.

4 BOOST AVR (VOLTAGE BOOST) indicator (YELLOW LED)
This LED illuminates when the UPS is correcting a low utility voltage condition. The loads receive normal power.

5 LINE NORMAL indicator (GREEN LED)
This LED illuminates when the line-input voltage is normal. (RM version; also flashes to indicate Backup mode)

6 ON/OFF/TEST/SILENCE button (TEST / SILENCE for GES-102VR). Press and hold the button for more than 3 seconds to turn the UPS "ON" or "OFF" (not applicable to GES-102VR). Press and hold the button less than 1 second to activate a self-test, or silence the back up alarm.

7 UPS OUTPUT SEGMENT 1 ON / OFF SWITCH
This switch allows independent ON / OFF control of UPS output segment 1 outlets on rear panel.

8 UPS OUTPUT SEGMENT 2 ON / OFF SWITCH
This switch allows independent ON / OFF control of UPS output segment 2 outlets on rear panel.

9 BYPASS ON/OFF SWITCH
This switch allows independent ON / OFF control of the surge-protected outlet on rear panel. (This outlet is not supplied backup power in the event of a power outage)

10 MAIN POWER
This toggle switch is the main power cutoff for the UPS. Use of this switch will remove power from loads and completely shutdown the UPS.

2.2. Rear Panel

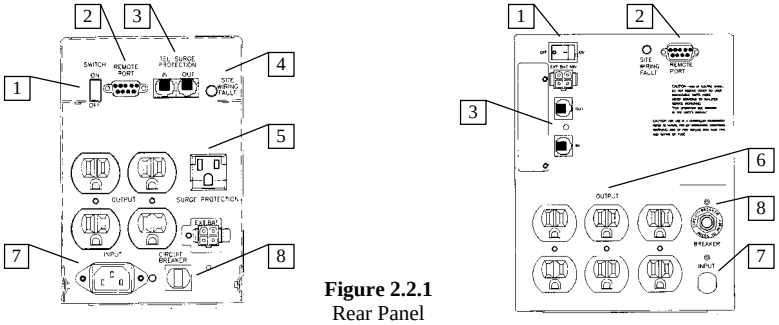


Figure 2.2.1
Rear Panel
Left GES-801, 102, 152V
Right GES-222V

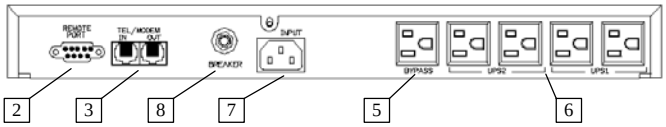


Figure 2.2.2
Rear Panel GES-102VR

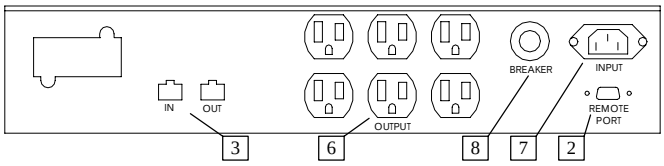


Figure 2.2.3
Rear Panel GES-152VR

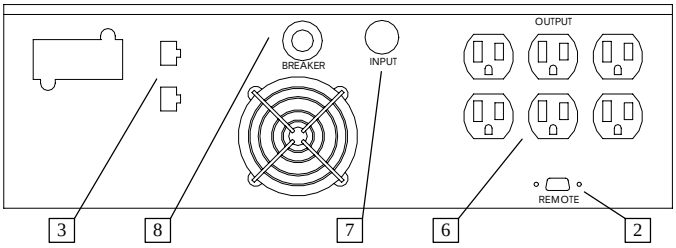


Figure 2.2.2
Rear Panel GES-222VR

1 MAIN POWER
This toggle switch is the main power cutoff for the UPS. Use of this switch will remove power from loads and completely shutdown the UPS.

2 COMPUTER INTERFACE
Both RS-232 and relay signal (Dry Contact) Interfaces are supplied to support WINDOWS, NOVELL, UNIX, DOS, and other operating systems.

3 TELEPHONE / MODEM / ETHERNET SURGE PROTECTION
Surge protection for telephone line, modem line, and 10BaseT line to maintain a completely safe connection for INTERNET / INTRANET service.

4 SITE WIRING FAULT INDICATOR (RED LED)
Illuminates when the UPS is connected to an improperly wired AC power outlet.
Note: This device is available on 110 VAC models only.

5 SURGE PROTECTION OUTLET ONLY <NO BACKUP>
This full time surge protection outlet provides protection from surges such as those created by lightning or connected equipment that has high initial current. Plug in equipment that does not require power during a blackout, this could include a printer, scanner, fax, audio device, etc.

6 OUTPUT POWER RECEPTACLES

7 AC INPUT POWER RECEPTACLE

8 INPUT CIRCUIT BREAKER
Trips when the connected loads exceed the protected receptacle's capacity. The center plungers of the circuit breakers extend when tripped.

3. INSTALLATION

3.1. Unpacking and Inspection

Examine the packaging for damage. Inform the carrier immediately if damage is noticed. Retain the packaging for future use.

3.2. Placement

Install the UPS in a protected area with adequate airflow and free of excessive dust. Do not operate the UPS where the temperature and humidity is outside the specified limits.

3.3. Connect Computer Interface (Optional)

UPSMON (or other power management software) and an interface kit can be used with this UPS. Use only kits supplied or approved by the manufacturer. If used, connect the interface cable to the 9-pin computer interface port on the back panel of the UPS (See Back Panel). This is optional; UPS will work properly without a computer interface connection.

3.4. Connect to Utility

Connect the AC input power connector (Included) to utility power.

3.5. Charging the Battery

The UPS charges its battery whenever the UPS is in LINE mode. For best results, charge the battery for 4 hours initially before connecting the load.

3.6. Connecting the Loads

Plug the loads into the output connectors on the rear of the UPS. To use the UPS as a master on/off switch, make sure all of the loads plugged into the UPS are switched on.

Caution:

Never connect a laser printer or plotter to the UPS with other computer equipment. A laser printer or plotter draws significantly more power on start-up than when idle, and will overload the UPS. If a laser printer or plotter requires protection against blackouts, brownouts and over-voltage the UPS needs to be increased in size to accommodate the inrush of power.

3.7. Connecting the Telephone / Modem / Ethernet Lines (Optional)

Connect a telephone line, modem line, or 10BaseT line into the telephone / modem / ethernet surge protection sockets on the back of the UPS. The RJ-45 / RJ-11 modular sockets accept standard single line telephone connections and 10BaseT connectors. This connection will require another length of cable. This is optional; UPS will work properly without this connection.

Caution:

The line current limiting feature could be rendered inoperable if improperly installed. Make sure that the line from the wall is plugged into the connector marked "IN", and the device to be protected (telephone, modem, etc.) is plugged into the connector marked "OUT". This surge protection device is for indoor use only; never install wiring during a lightning storm.

3.8. Storage Conditions

Store the UPS covered and upright in a cool, dry location, with its battery fully charged. Before storing, charge the UPS for at least eight (8) hours. Remove any accessories in the accessory slot and disconnect any cables connected to the computer interface port to avoid the unnecessary draining of the battery.

3.9. Extended Storage

During extended storage periods in environments where the ambient temperature is -15 to +30°C (+5 to +86°F), charge the UPS's battery every 6 months.

During extended storage in environments where the ambient temperature is +30 to +45°C (+86 to +113°F), charge the UPS's battery every 3 months.

4. OPERATION

4.1. Switching "On" the UPS

For all but the GES-102VR:
With the UPS plugged in and utility power present, press and hold the On / Off / Test / Silence Button more than 3 seconds or until the LED is lit. The UPS will perform self-testing each time it is switched "On".

For the GES-102VR:
With the UPS plugged in and utility power present, turn the Main Power toggle switch to the "On" position. The UPS will perform self-testing each time it is switched "On".

4.2. Switching "Off" the UPS

For all but the GES-102VR:
Press and hold the On / Off / Test / Silence Button for more than 3 seconds, or until the Line Normal or Back-Up LED turns off.

For the GES-102VR:
Turn the Main Power toggle switch to the "Off" position.

4.3. Self-Test

Use the self-test to verify both the operation of the UPS and the condition of the battery. When normal utility power is present, push the On / Off / Test / Silence (Test / Silence for GES-102VR) Button for less than 1 second. During the self-test, the UPS operates in back-up mode.

During the self-test, the UPS briefly operates the loads with battery power (the LED flashes every 2 seconds). If the UPS passes the self-test, it returns to on-line operation. The LED stops flashing and the LED remains on. If the UPS fails the self-test it immediately returns to on-line operation. The loads are unaffected when performing a self-test. Recharge the battery overnight and perform the self-test again. If the UPS still fails a self-test, ask our nearest dealer to replace the battery.

4.4. Silence the Alarm

In Back Up mode, push On / Off / Test / Silence (Test / Silence for GES-102VR) Button for less than 1 second to silence the audible alarm. (This function will not work when the UPS is in "LOW BATTERY" or "OVERLOAD" condition.)

4.5. Cold Start

When the UPS is off and there is no utility power, use the cold start feature to apply power to the loads from the UPS's battery. Press the ON / TEST button (see Front Panel section for location of the indicator) until the UPS beeps.

4.6. Shutdown Mode

In shutdown mode the UPS stops supplying power to the load and waits for the return of utility power. If there is no utility power present, external devices (e.g., servers) connected to the computer interface can command the UPS to shutdown. This is normally done to preserve battery capacity after the graceful shutdown of protected servers.

4.7. Green Function

In order to conserve battery power when in backup mode the UPS will automatically shutdown after 5 minutes if the connected loads are operating at less than 20 watts.

To disable "GREEN FUNCTION" press and hold the "On" button during initial start-up for at least 3 seconds until a beep-beep sound is heard.

5. AUDIBLE ALARM

5.1. Back-Up (Slow Alarm)

When in back-up mode, the LED flashes every 2 seconds and the UPS sounds an audible alarm. The alarm stops when the UPS returns to line normal operation. Press the On / Off / Test / Silence Button during back-up mode to silence the beeping.

5.2. Low Battery (Rapid Alarm)

In back-up mode, when the battery energy runs low, the UPS beeps rapidly until the UPS shuts down from battery exhaustion or returns to line normal operation.

5.3. Overload (Continuous Alarm)

When the UPS is overloaded (the connected load exceeds the maximum rated capacity of the UPS) the UPS sounds a continuous alarm to warn of an overload condition. Disconnect non-essential loads until the UPS stops the alarm.

5.4. Replace Battery (Continuous Alarm)

The UPS emits a continuous beep if the battery fails the self-test. See replace battery section for battery replacement or call your dealer for service.

6. SOFTWARE OPTIONS

6.1. UPSMON Software

The UPSMON software uses the standard RS-232 interface to perform monitoring functions and then provides an orderly shutdown of a computer in the event of power failure. Moreover, UPSMON displays all diagnostics through a graphical display, such as Voltage, Frequency, Battery Level, etc.

The software is available for DOS, Windows 3.1x, Windows 95 / 98 / 00 / XP & Windows NT V3.5 or later.

6.2. Interface Kits

A series of interface kits are available for various operating systems that provide UPS monitoring. Each interface kit includes the special interface cable required to convert status signals from the UPS into signals that the individual operating system will recognize. The interface cable at the UPS side must be connected to the REMOTE PORT, at the computer side it can be connected to either COM1 or COM2. For other installation instructions and powerful features please refer to READ ME file included within the software.

Caution:

Use only factory supplied or authorized UPS monitoring kits!

6.3. Computer Interface Port

The communication port on the back of the UPS may be connected to a host computer. This port allows the computer to monitor the status of the UPS and control the operation of the UPS. Its major functions include the following:

1. The ability to broadcast a warning when the power fails.
2. The ability to close any open files before the battery reserves are exhausted.
3. The ability to turn off the UPS.
4. The ability to make the UPS perform a self-test.

Some computers are equipped with a serial connector to link with the communication port, in some cases a special plug-in card may be needed.

6.4. Open Collector (Dry Contact) Communication
[Pins for the GES-801V, GES-102V and GES-152V]
(Pins for the GES-222V)

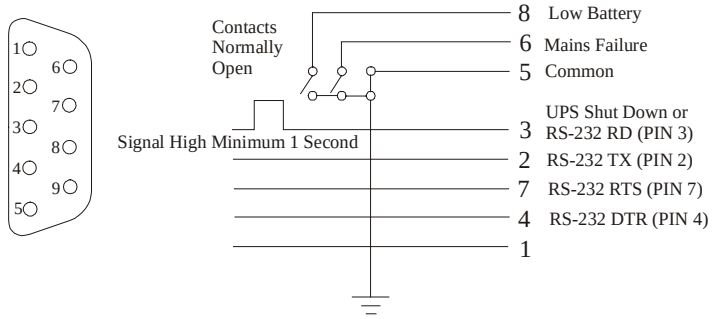
1. Pin [8] (5) and [6] (2) are open collector outputs that must be pulled up to a common referenced supply no greater than +40VDC.
2. The transistors are capable of a maximum non-inductive load of 25mADC, use pin [5] (4) as the common.
3. Pin [8] (5) generates a High to Low signal when the battery inside the UPS has less than 5 minutes back up time left.
4. Pin [6] (2) generates a High to Low signal when the line has failed.
   Pin [3] (7) will shut down the UPS is a high is sustained for 0.36 seconds.

6.5. RS-232 Communication
[Pins for the GES-801V, GES-102V and GES-152V]
(Pins for the GES-222V)

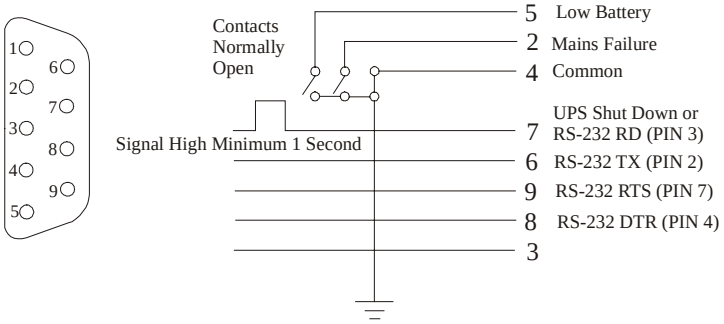
5. Pin [3] (7) is the RS-232 data input from computer (RX).
6. Pin [2] (6) is the RS-232 data output to computer (TX).
7. Pin [4] (8) is the RS-232 data transmit bit (DTR).
8. Pin [7] (9) is the RS-232 data receive bit (RTS).
9. Pin [5] (4) is the common or computer ground.

NOTE:
1. Switch rating +40V, 25mADC non-inductive.
2. Pin 7 should be connected to computer ground only.

DB-9 Pin Configuration for the GES-801V, 102V, and 152V



DB-9 Pin Configuration for the Purple Cable (GES-222V)



7. BATTERY REPLACEMENT

WARNING:
Completing the procedure below will void any remaining warranty on the UPS system.

Caution:
Do not dispose of battery in a fire. Do not attempt to open the battery. When replacing the battery use tools with insulated handles and remove watches, rings, etc…

Your battery should run anywhere from 3-5 years before it needs to be replaced.
Please follow the instructions below for easy, trouble free, battery replacement.

1. Turn the UPS off (follow procedure previously mentioned).
2. Unplug the UPS from utility power source and disconnect all connected loads.
3. Disconnect AC power cord from unit.
4. *For the 801V / 102V / 152V / 222V:* Pull on the top of the faceplate until the 2 top tabs release. Remove the faceplate and set to the side.
   For the 152 / 222VR: Using a Phillips screwdriver, remove the 2 screws holding the faceplate on. Remove the faceplate and set to the side.
   For the 102VR: Turn the UPS upside down. Using a Phillips screwdriver remove the 4 screws holding the top to the bottom. Flip the UPS right side up. Remove the 8 screws for the handles and the one screw on the back.
5. *For the 801V / 102V / 152V / 222V:* The battery retainer plate should be visible. Using a Phillips screwdriver remove the screw at the battery plate and set the plate to the side.
   For the 152 / 222VR: The battery retainer plate should be visible. Using a Phillips screwdriver remove the 3 screws holding the battery retainer plate on and set the plate to the side.
   For the 102VR: From the back pull the top cover off of the UPS.
6. *For the 801V / 102V / 152V / 222V:* Carefully pull the batteries out of the UPS. Remove the connecting wires noting polarity.
   For the 152 / 222VR: Carefully pull the batteries out of the UPS using the white tab hanging in front of the batteries. Remove the connecting wires noting polarity.
   For the 102VR: Remove the connecting wires from the batteries noting polarity.
7. You can now easily remove the battery from the unit
8. Place your new battery in the same position, direction and reconnect the wires. The red wire to the positive (+) pole and black wire to the negative (-) pole.
9. Reverse the above steps to reassemble the unit.
10. Follow start-up instructions in order to properly reconnect your equipment.

8. TROUBLESHOOTING

Please follow the guidelines below for common problems:

- ✓ Check UPS input plug and wiring.
- ✓ Check UPS input voltage.

Please prepare the information as follows for service personnel:

- ✓ UPS model number and serial number
- ✓ Description of problem(s) in detail.

8.1. General Problems

Problems	**Possible causes**	**Solution**
UPS has no reaction while AC power is connected	Breaker at back panel open No AC input UPS fault Battery failure	Replace Fuse / Switch breaker on Check AC power Call for service Call service center to replace batteries
UPS has no reaction while AC power is connected, yet starts after pushing power on/off switch	Breaker at back panel open No AC input UPS AC detecting circuit fail	Switch breaker Check AC power Call for service
UPS goes into back-up mode while connected to AC power	Utility voltage or frequency abnormal UPS AC detecting circuit failure	Check AC power Call for service
Battery can not provide normal back-up power in the event of a blackout	Battery deteriorated Batteries not fully charged Battery charger damaged	Charge batteries and reset If that doesn't work call for service
After AC connected to UPS, alarm sounds short and fast beeps and UPS shuts down	Abnormal utility power	Check input power

9. TOWER SPECIFICATIONS

MODEL		GES-801V	GES-102V	GES-152V	GES-222V
INPUT	Capacity	800VA	1kVA	1.5kVA	2.2kVA
	Voltage	120V, 220V +/-25%			
	Frequency	50 or 60Hz +/-5% (auto sensing)			
OUTPUT	Voltage (on battery)	Simulated sine wave at Line Input +/-5%			
	Frequency (on battery)	50 or 60Hz +/-0.5%			
	Voltage Regulation AVR	±13% of nominal (120V)			
	Transfer Time	2/4 milliseconds, including detection time			
PROTECTION and FILTERING	Spike Protection	320 joules, 2ms			
	Overload Protection	UPS automatic shutdown if overload exceeds 110% of nominal for 60 second or 130% for 3 seconds.			
	Unit Input	Fuse for overload & short circuit protection			
	10BaseT/Modem Line	Network (UTP, RJ-45) compatible jacks			
	Short Circuit	UPS output cut off immediately or input fuse protection			
BATTERY	Type	Maintenance-free, Sealed Lead Acid			
	Typical Recharge Time	4 hours (to 90% of full capacity)			
	Protection	Automatic self-test & discharge, replace battery indicator			
	Back-up Time	10 - 30 minutes (depending on load)			
PHYSICAL	Net Weight kg(lbs)	13 (28.6)	15 (33.0)	15.6 (34.3)	26.2 (57.6)
	Shipping Weight kg(lbs)	14.2 (31.2)	16.2 (35.6)	16.8 (36.9)	28.2 (62.0)
	Dimension mm (inches) WxDxH	130x382x201 (5.1x15x7.9)			169x448x227 (6.6x17.6x8.9)
	Input Inlet	IEC 320 power inlet			
ALARM	Battery Back-Up	Slow beeping sound (about 0.47Hz)			
	Battery Low	Rapid beeping sound (about 1.824Hz)			
	Overload	Continuous beeping sound			
INTERFACE	RS-232/Dry Contact	YES			
CONFORMANCE	Safety	cUL UL1778, CSA C22.2 and FCC Class B			
	Surge	IEEE C62.41 CAT. A			
ENVIRONMENT	Ambient Operation	6,000 meters max. elevation, 0-95% humidity non-condensing 0-30°C			
	Audible noise	<40dBA (1 meter from surface)			
	Storage Condition	15000 meters max. Elevation			

Specifications subject to change without prior notice to reflect upgrades and improvements in technology.

10. RACK MOUNT SPECIFICATIONS

V-SERIES	MODEL NO.	GES-801V	GES-102V	GES-152V	GES-222V
GENERAL	MAXIMUM CAPACITY	800VA / 495W	1kVA / 600W	1.5kVA / 900W	2.2kVA/1320W
	UPC ORDER CODE	825433 20500	825433 20600	825433 20700	825433 20850
INPUT	NOMINAL VOLTAGE	120VAC (optional 220VAC)			
	VOLTAGE RANGE	+ / - 25%			
	FREQUENCY RANGE	50 or 60 Hz (+ / - 5%)			
OUTPUT	NOMINAL VOLTAGE	120VAC			
	VOLTAGE REGULATION	+ / - 13% of nominal			
	CURRENT	6.87A	8.33A	12.5A	118.33A
	FREQUENCY	50 / 60Hz (Auto Detected)			
	WAVEFORM (ON BATTERY)	PWM (Pulse Width Modulated) or Modified Sine Wave			
	POWER FACTOR	< 0.6			
	CREST FACTOR	3:1 (on battery)			
	TRANSFER TIME	2 - 4 ms (Typical)			
	OUTLETS	4+1 Surge	4+1 Surge	4+1 Surge	6

BATTERY	BATTERY TYPE	SEALED LEAD ACID - MAINTENANCE FREE			
	QUANTITY	2	2	2	4
	VOLTAGE	24VDC		48VDC	
	RECHARGE TIME	4 HOURS; RECOVERY = 90%, TYPICALLY			
BACKUP POWER TIME	FULL LOAD	≥ 10 MIN.	≥ 10 MIN.	≥ 10 MIN.	≥ 10 MIN.
	HALF LOAD	≥ 25 MIN.	≥ 25 MIN.	≥ 25 MIN.	≥ 25 MIN.
	PENTIUM & 17" MON	≥ 35 MIN.	≥ 35 MIN.	≥ 45 MIN.	≥ 70 MIN.
PROTECTION	OUTPUT SHORT	YES			
	ABNORMAL VOLTAGE	YES			
	MODEM OR NETWORK	SINGLE LINE (2 wire RJ-11) / NETWORK (UTP, RJ-45) COMPATIBLE JACKS			
	I/O NOISE PROTECTION	COMMON & NORMAL MODE NOISE SUPPRESSION			
	I/O SPIKE & TRANSIENT PROTECTION	YES			
INTERFACE	COMMUNICATION	RS-232 / DRY CONTACT			
	LED DISPLAY	Normal / Back-up / Low Battery / Fault / Check Battery / Buck / Boost			
	AUDIBLE ALARMS	On Battery, Low Battery, Overload, Fault			

ENVIRONMENT	OPERATING TEMPERATURE	0 - 40°C (32 - 104°F)			
	HUMIDITY	0% ~ 90% (Non-Condensing)			
	AUDIBLE NOISE	< 40 dBA AT 1 METER FROM UNIT			
SAFETY APPROVAL	SAFETY	cUL, UL1778, CSA C22.2			
	EMI / RFI	FCC CLASS B			
	SURGE / TRANSIENT	IEEE C62.41 CAT.A			
PHYSICAL DATA	WxDxH mm (in.)	130x382x201 (5.2x15.3x8)			170x450x214 (6.8x18x8.6)
	WEIGHT in kg (lbs)	13 (28.7)	15 (33.1)	15.6 (34.4)	26.2 (57.8)
RACK-MOUNT MODELS	MODEL NO.	Available Consult Manufacturer	GES-102VR	GES-152VR	GES-222VR
	UPC Order Code		825433 20603	825433 20701	825433 20851
	WxDxH mm (in.)		483x351x44 (19x13.8x1.75) [1U]	483x351x89 (19x13.8x3.5) [2U]	483x351x133 (19x13.8x5.25) [3U]
	WEIGHT in kg (lbs)		17.8 (39.2)	18.3 (40.3)	30.4 (67.0)

11. CONTACT INFORMATION

11.1. Additional Purchases or Upgrades

Always "On" UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 451
Fax: (250) 491-9775
Email: sales@alwaysonups.com
Website: www.alwaysonups.com

11.2. QA / Warranty Questions

Always "On" UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 209
Fax: (250) 491-9775
Email: qa@alwaysonups.com
Website: www.alwaysonups.com

11.3. Software Questions

Always "On" UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 204
Fax: (250) 491-9775
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Website: www.alwaysonups.com